

California's Spark-Ignition Marine Vessel Proposal

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Proposed Evaporative Emission Standards & Certification Process



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Presentation Outline

- Objectives
- Who is the California Air Resources Board?
- Purpose of ARB Regulation
- Emission Standards
- ARB Control Technology
- Certification
- Contact Information



Objectives

- Present the California Air Resources Board's (ARB) proposed emission standards and regulations
- Provide an overview of ARB's proposed certification process



Who is the California Air Resources Board?

- ARB is a state government entity responsible for regulating mobile source emissions throughout California
- ARB regulates emissions from cars, trucks, lawn mowers, off-road recreational vehicles, portable fuel containers, and outboard marine tanks



Purpose of ARB Regulation

- California has the worst air quality in the nation
- ARB develops regulations to comply with the federal Clean Air Act requirements
- The regulation will also meet the commitment described in California's State Implementation Plan
- This regulation will help California obtain the emission reductions needed for ozone attainment



Applicability

- ARB's regulatory proposal applies to all spark-ignition marine vessels (SIMV) with permanently installed fuel tanks sold in California
 - Only vessels that use engines $> 40\text{HP}$ must meet the more stringent standards
 - Vessels that use engines $\leq 40\text{HP}$ will continue to meet U.S. EPA standards



Pathways to Compliance

- ARB's proposed regulation has two methods for demonstrating compliance:
 - Design-Based – Requires vessel manufacturer to use specific ARB certified components for:
 - fuel injection
 - low permeation fuel hoses
 - low permeation fuel tank
 - passively purged carbon canister or pressure relief valve
 - Performance Alternative – One standard for the complete boat or fuel system
 - Based on a 24-hour diurnal test (TP-1501)



Draft Proposal – Key Elements

Design-Based Standards: > 40 HP Trailerable

- Applicable to vessels ≤ 26 ft. in length and ≤ 8.5 ft. in width

Trailerable boats					
Model Year Effective Date	Fuel Hose Permeation (grams ROG/m ² /day)	Fuel Tank Permeation (grams ROG/m ² /day)	Diurnal Tank Venting Loss Requirement (grams HC/gallon/day)		Meet Fuel Injection Definition or Equivalent Performance Standard (grams HC/hour)
			Canister	Non-Canister	
2017 and 2018	10.0	0.70	0.25	65% reduction from uncontrolled HC emissions	0.4
2019 and later	5.0*	0.70	0.25	65% reduction from uncontrolled HC emissions	0.4
Test Procedure	TP-1504 or SAE J1737	TP-1504	TP-1503		TP-1502

* - If commercially available



Draft Proposal – Key Elements

Design-Based Standards: > 40 HP Non-Trailerable

- Applicable to vessels > 26 ft. in length or > 8.5 ft. in width

Non-Trailerable Boats				
Model Year Effective Date	Fuel Hose Permeation (grams ROG/m ² /day)	Fuel Tank Permeation (grams ROG/m ² /day)	Diurnal Tank Venting Loss Requirement (grams HC/gallon/day)	Meet Fuel Injection Definition or Equivalent Performance Standard (grams HC/hour)
2016 and 2017	10.0	0.70	0.16	0.4
2018 and later	5.0*	0.70	0.16	0.4
Test Procedure	TP-1504 or SAE J1737	TP-1504	TP-1503	TP-1502

* If commercially available



Draft Proposal – Key Elements

Performance Standard: >40 HP

- Alternative to design-based certification
- Complete boat or fuel system must be tested in a SHED over a 24-hour diurnal cycle following test procedure TP-1501

Marine Boat Type	Model Year Effective Date	Diurnal Standard (grams HC/day)
All Marine Boats With Engines >40 HP	2016 and later	$0.048 * \text{Tank Volume (liters)} + 0.97$



Anticipated ARB Control Technology

Similar to U.S. EPA controls except more stringent evaporative components

Lower
Permeation Fuel
Tank



Carbon Canister
or PRV



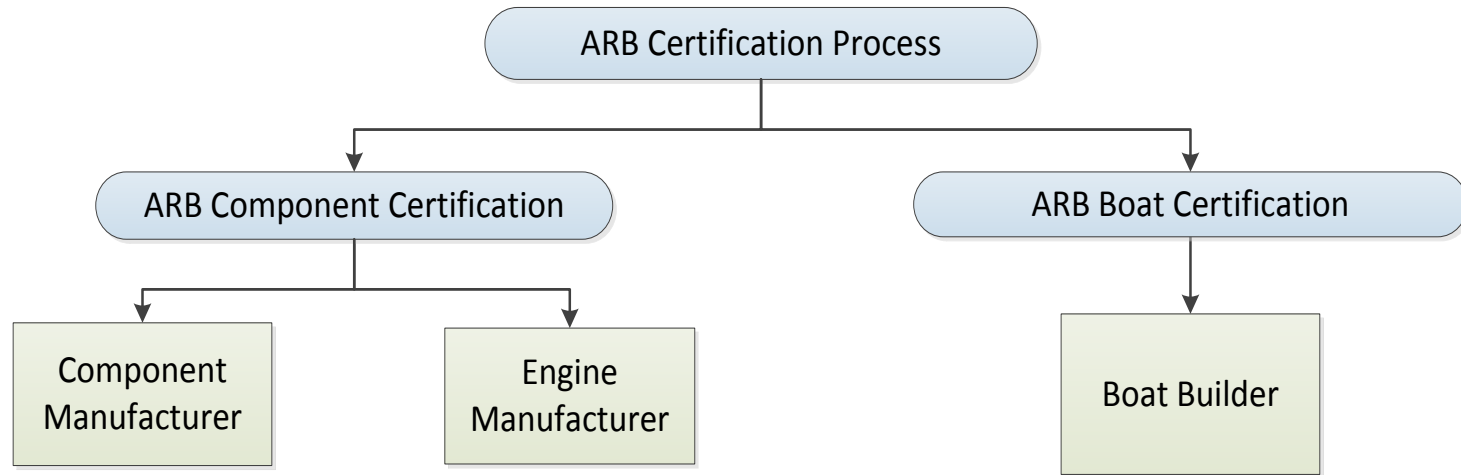
Lower
Permeation Fuel
Hoses



Fuel Injection



Overview of ARB Certification Process



- No fees for ARB certification
- Applications processed in the order received
- ARB allows third party certification consultation but boat builder is still responsible party



ARB Component Certification

(Evaporative Components)

- Similar to U.S. EPA
- Must include 5 data test points
- Application must be deemed complete before it can be processed
- ARB will issue a component Executive Order (EO) for each component
- Engine manufacturer responsible for certification of fuel injection system



ARB Boat Certification

- What is boat certification?
 - Boat builders demonstrate their product meets evaporative requirements
 - Upon completion, an ARB EO is issued to allow sale of boat into California
 - Boat certification is the certification of an evaporative family
 - One application per evaporative family
 - An evaporative family can cover many models that utilize same type of components



ARB Boat Certification Process

- How is ARB boat certification useful?
 - Provides a formal legal document showing that the boat is ARB certified
 - Facilitates enforcement
 - Levels the playing field for all manufacturers who are complying with current EPA and proposed ARB requirements

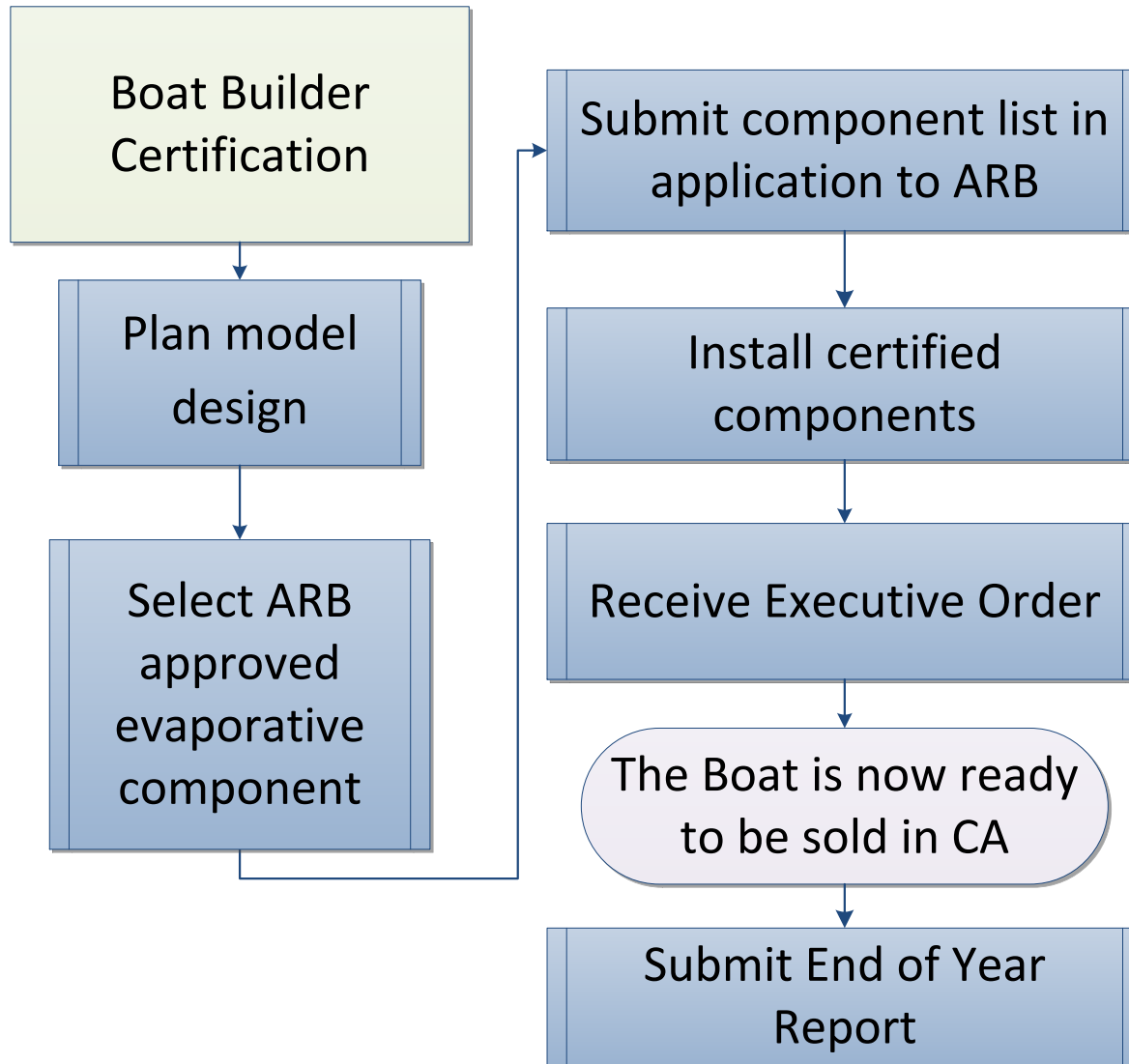


ARB Boat Certification Process

- How do I certify my boat?
 - Plan model(s) design
 - Group models into a family
 - Submit application
 - Build model
 - Receive executive order
 - Sell boat



ARB Boat Certification Process



Boat Builder Planning

- Boat builders should plan in advance the design of the evaporative system
 - No significant modification for ARB evaporative configurations
 - If models remain the same from previous year, boat builders can use previous information
- Once a design has been established, the boat builder can apply for certification
 - Application will be processed quickly
 - Boat builder can submit an application at any time after they know the model design



Boat Builder Application Process

- Design-Based Application - Start of Model Year
 - Boat builders submit one application for each evaporative family
 - On the application, reference the EO number for all evaporative components specific to that evaporative family
 - Submit your application to the Mobile Source Operations Division (MSOD)
 - If compliant, ARB issues an EO within 90 days



Boat Builder Application Process

- Design-Based Application - End of Model Year Report
 - For each evaporative family, boat builders will submit a schedule of all boat models constructed with that family's specific evaporative system and specific combination of ARB EO approved components during the model year for which the certification application was submitted



Evaporative Family

- What is an evaporative family?
 - Evaporative Family means a class of evaporative components used on vessels that are grouped together based on similar fuel system characteristics
 - This applies to similar fuel hose types, fuel tank types, carbon canister sizes, etc.



Evaporative Family

- Characteristics of evaporative families
 - Vented control: carbon canister vs. pressure relief valve
 - Fuel tank types: metal vs. plastic
 - Fuel hose types: EPA vs. ARB
 - Boat size: trailerable vs. nontrailerable



Evaporative Family

Example – Single Evaporative Family

Fuel System Design	Evaporative Family Type
Fuel Hose Type	A1-15
Fuel Tank Type	Plastic
Vent Type	Carbon Canisters 0.5L – 0-60 gallons 0.75L – 62-93 gallons 1.0L – 93-124 gallons
Trailerable or Nontrailerable	Trailerable

- All models that have these characteristics is considered **one** evaporative family and needs only one certification application



Evaporative Family

Example – Two Evaporative Families

Fuel System Design	Evaporative Family Type
Fuel Hose Type	A1-15
Fuel Tank Type	Plastic or Metal
Vent Type	Carbon Canisters 0.5L – 0-60 gallons 0.75L – 62-93 gallons
Trailerable/Nontrailerable	Trailerable

- Models using plastic tanks will be in one evaporative family; models using metal tanks will be in a second family



Label & Warranty

- SIMVs certified for sale in California will be required to have an evaporative emissions label and warranty statement
- Labels and warranty statements can be approved ahead of time
 - Remain valid for future model years provided no changes are made
- ARB will furnish templates for evaporative emissions labels and warranty statements



NMMA Participation

- NMMA has been actively engaged with ARB
 - Working with ARB since 2006
 - Actively participated in all ARB marine workshops
 - Helped streamline ARB marine certification
 - Provided information about NMMA safety certification
 - Helped to understand the unique manufacturing process of the boat building industry
 - Organized face-to-face meetings with ABYC, industry representatives, and boat builders



Cooperation with NMMA/ABYC

- ARB sees merit to the proposed NMMA evaporative inspection program
- ARB will continue to work with NMMA and ABYC to:
 - Further simplify and streamline the ARB certification process
 - Develop a NMMA certification package to expedite ARB certification review and issuance of an EO



ARB Timeline

- ARB is planning to go to the Board in summer 2014
- Certification workshops and training for boat builders will follow Board adoption
- Details about the proposal, test procedures and application can be found on ARB's Recreational Marine Activities website:
 - <http://www.arb.ca.gov/msprog/offroad/recmarine/recmarine.htm>



Questions?

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